United States Department of Agriculture | Forest Service | Arizona Zone Entomology & Pathology | 2500 S. Pineknoll Dr. Flagstaff, AZ 86001

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Route To:

Subject: Pile burning to prevent Ips infestation of early slash at an administrative site on Alpine Ranger District

To: Nancy Walls, acting District Ranger, Alpine Ranger District

This letter is a follow up to our discussion on April 30, 1997 regarding the possible buildup of Ips beetles in slash piles created earlier this year. The piles were located in thinned areas of an administration site near the District office off of highway 180.

All piles that were unburned that morning were inspected for Ips bark beetle attack. This sort of material is a favored environment for breeding in the spring of the year. All piles had some level of infestation. Two sticks were looked at in each pile and the average number of attacks was calculated to be 6 per stick. Upon excavating galleries, it was also noted that the females were still laying eggs and the egg galleries were only 4 inches in length. At this point no larvae had hatched.

I also took the opportunity to look at the plastic covered piles to see if they were heating up. Unfortunately, one of the areas of covered piles is located on a north-northwest facing slope and the canopy cover is still dense, even after thinning. This group of piles will probably not have enough sunlight reaching the plastic covered piles to generate the amount of heat necessary to kill the brood in these infested piles. It was also noted that several piles had tears in the plastic, allowing heat to escape. The bases of the piles also needed to be buried to help trap the heat as well.

The third set of piles that I looked at were nearer the homes on the west side of the administrative site and were on a south-southwest facing slope with a more open canopy. These covered piles, will have the chance to heat up sufficiently to kill the beetles and brood infested slash, especially if the plastic at the base of the piles is sealed and there are no tears in the plastic.

The piles to be burned by Terra Torch were burned on April 29 and 30. These piles appeared to be fairly uniform in size: 4-6 feet in height and about 10 feet in diameter. They were in a tee pee structure with most of the fine flashy fuels on the bottom of the pile and the heavier fuels at the top. These piles were of green material, cut approximately two weeks prior to burning. The 1000 hr fuels were estimated by Cliff Claridge to be between 45-60%. Cliff also put six pieces of angle iron into piles which had temperature sentive wax on them to estimate burned pile temperatures.

After the piles were burned it was clear that not much slash was left, generally the largest pieces. Those pieces which had not been totally consumed, appear to be unfit for beetle brood production. The bark layer is charred and very thin, the cambial layer looked very dark (cooked) and most of the moisture had come boiling through the ends. The angle iron was retrieved from the piles and indicated that the heat generated inside them was in excess of 1000 degrees F.

In general, I believe that burning the infested piles killed the beetles currently infesting the slash, as well as making it unsuitable for further use by bark beetles. I plan on making another trip to this area to look at the burned sticks and make sure that they are not being used by Ips beetles for reproduction. I would also like to look at the residual trees that may have been scorched during the pile burning process. These may sometimes become infested by other bark beetles, as well as by engraver beetles.

The plastic covered piles on the north-northwest facing slope will not work under current conditions. The objective of this method is to kill beetles and brood in already infested material. It is not meant as a preventative. Much time and effort is spent cutting slash into manageable pieces that are stacked into piles. Piles need to be situated in open areas of the stand, so that sunlight reaches them. Also it is necessary to have a good seal at the base of the pile to help keep heat in. This is accomplished by trenching around the pile and burying the ends. None of the plastic covered piles on the east side of the administrative site (north-northwest facing slope) met these requirements. This method may not really have been suitable for this particular site. These piles should not be left as they are. You might consider burning these slash piles or chipping them or removing the material from the site. This should be accomplished by the end of June in order to prevent emergence of the current generation of developing brood.

I think that the piles on the south-southwest facing slope could be kept covered if some additional work was done to improve their heat-holding capacity. This would include making sure that there are no holes in the clear plastic and to try and put enough gravel or soil on the ends of the plastic to seal the base.

If you have any questions regarding this letter, I can be reached at (520) 556-2072.

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